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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,533	12/04/2000	Patrick J. Crilly	00-430	4781

7590 08/27/2004

Steve D. Lundquist
Caterpillar Inc.
Intellectual Property Department, AB6490
100 N.E. Adams Street
Peoria, IL 61629-6490

EXAMINER

SHAAWAT, MUSSA

ART UNIT	PAPER NUMBER
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2128

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/729,533

Applicant(s)

CRILLY ET AL.

Examiner

Mussa A Shaawat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>29 January 2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the application # 09/729,533 filed on December 04, 2000. Claims 1-14 are presented for examination.

Priority

2. Examiner notes, the application number of the provisional of claimed priority in the non-published specifications and in the published specification does not match the application number of the provisional in the Oath/Declaration, please confirm.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference character(s) mentioned in the description: character "40" Paragraph [0032] line 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Ludewig et al, US Patent No. (5,729,345) referred to hereinafter as Ludewig.

As to Claim 1, Ludewig teaches a method for controlling distortion of a material during a weld process, including the steps of, see Ludewig (abstract, col.1 lines 45-67 and col.2 lines 1-20, et seq.): modeling the weld process of the material, see Ludewig (abstract, col.1 lines 45-67 and col.2 lines 1-43); determining distortions produced by the weld process in the model, see Ludewig (col.3 lines 5-12, et seq.); determining a plurality of simulated induced distortions in the model to offset the produced distortions, see Ludewig (col.3 lines 15-45 and col.4 lines 1-20, et seq.); generating a plurality of actual induced distortions in the material as a function of the simulated induced distortions; and performing the weld process on the material see Ludewig (col.6 lines 20-26, col.6, lines 45-47, col.4 lines 1-40, and col.5 lines 1-20).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ludewig et al US Patent No. (5,729,345) referred to hereinafter as Ludewig in view of Okazaki et al US Patent No. (5,901,426) referred to hereinafter as Okazaki.

6. As to claim 2, Ludewig teaches a method, as set forth in claim 1, to determine a plurality of simulated induced distortions and determining a plurality of actual induced distortions, see

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Ludewig (col.6 lines 20-26, col.6, lines 45-47, col.4 lines 1-10, and col.5 lines 1-35). Though Ludewig teaches induced distortions, he does not expressly teach the types of distortions such as: pre-straining and pre-cambering distortions.

Okazaki teaches a method wherein generating a plurality of pre-straining and pre-cambering distortions, see Okazaki (col.4 lines 24-40, and col.12 lines 50-67). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Okazaki and Ludewig to create a method for controlling distortion of a material during a weld process using a method of pre-straining, and pre-cambering because doing so would offset the distortion caused by the welding process which would result in a finished welded material that approximates the original condition of the material.

7. As to claim 3, Ludewig teaches a method, as set forth in claim 2, to determine a plurality of simulated induced distortions, see Ludewig (col.6 lines 20-26, col.6, lines 45-47, col.4 lines 1-20, and col.5 lines 1-35). Though Ludewig teaches induced distortions, he does not expressly teach pre-straining distortions that include the step of bending the material into a permanent distorted shape.

Okazaki teaches a method to generate a plurality of pre-straining distortions, see Okazaki (col.4 lines 24-40, and col.12 lines 50-67). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Okazaki and Ludewig to create a method for controlling distortion of a material during a weld process using a method of pre-straining, and pre-cambering because doing so would offset the distortion caused by the welding process which would result in a finished welded material that approximates the original condition of the material.

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8. As to claim 4, Ludewig teaches a method, as set forth in claim 2, to determine a plurality of simulated induced distortions, see Ludewig (col.6 lines 20-26, col.6, lines 45-47, col.4 lines 1-20, and col.5 lines 1-20). Though Ludewig teaches induced distortions, he does not expressly teach pre-cambering distortions that include the step of bending the material into a temporary distorted shape.

Okazaki teaches a method to generate a plurality of pre-cambering distortions, see Okazaki (col.4 lines 24-40, and col.12 lines 50-67). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Okazaki and Ludewig to create a method for controlling distortion of a material during a weld process using a method of pre-straining, and pre-cambering because doing so would offset the distortion caused by the welding process which would result in a finished welded material that approximates the original condition of the material.

9. As to claim 5, Ludewig teaches a method, as set forth in claim 4, to determine induced distortions, see Ludewig (col.6 lines 20-26, col.6, lines 45-47, col.4 lines 1-25, and col.5 lines 1-35). Though Ludewig teaches a method of generating induced distortions, he does not expressly teach the step of bending the material into a temporary distorted shape that includes the step of clamping the material into a pre-cambering fixture adapted to hold the material in the temporary distorted shape.

10. Okazaki teaches a method of clamping the material into a pre-cambering fixture adapted to hold the material in the temporary distorted shape, see Okazaki (col.1 lines 60-67, col.2 lines 1-25, and col.4 lines 24-40). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Okazaki and Ludewig

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to create a method for controlling distortion of a material during a weld process using a method of installing a plurality of actual clamps at the desired location to clamp the material, because doing so would result in a more efficient welding process of the material.

11. As to claim 6, Ludewig teaches a method, as set forth in claim 5, modeling the steps of welding the material by at least one simulated robotic welding arm, see Ludewig (col.3 lines 1-20, col.4 lines 1-20, et seq.); and performing the welding process by at least one actual robotic welding arm, see Ludewig (col.4 lines 58-67, and col.5 lines 1-25). Though Ludewig teaches a method to model the steps of welding the material by at least one simulated robotic welding arm, he does not expressly teach the steps of modeling the locations of a plurality of clamping the material into the pre-cambering fixture, the step of modifying the pre-cambering fixture to prevent interference to the at least one simulated robotic welding arm, and the step of installing a plurality of actual clamps at the desired locations to clamp the material into the pre-cambering fixture.

12. Okazaki teaches a the steps of modeling the locations of a plurality of clamping the material into the pre-cambering fixture, the step of modifying the pre-cambering fixture to prevent interference to the at least one simulated robotic welding arm, and the step of installing a plurality of actual clamps at the desired locations to clamp the material into the pre-cambering fixture, see Okazaki (col.2 lines 1-25, col.3 lines 1-20, col.4 lines 24-40, col.7 lines 40-67 and col.12 lines 50-67). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Okazaki and Ludewig to create a method for controlling distortion of a material during a weld process using a method of installing a

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plurality of actual clamps at the desired location to clamp the material, because doing so would result in a more efficient welding process of the material.

13. As to claim 7, Ludewig teaches a method, as set forth in claim 6, to generate a plurality of simulated induced distortions, see Okazaki (col.4 lines 24-40, and col.12 lines 50-67). Though Ludewig teaches a simulated induced distortion, he does not expressly teach the step of modifying the pre-cambering fixture includes the step of moving the location of at least one simulated clamp.

Okazaki teaches the step of modifying the pre-cambering fixture includes the step of moving the location of at least one simulated clamp; see Okazaki (col.2 lines 35-67, col.3 lines 1-67). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings of Okazaki and Ludewig to create a method for controlling distortion of a material during a weld process using a method of installing a plurality of actual clamps at the desired location to clamp the material, because doing so would result in a more efficient welding process of the material.

14. As to claim 8, claim 1 includes all the limitations of claim 8; therefore claim 8 is rejected under the same rational, supra. The additional feature of claim 8, which is "pre-straining distortion" is taught by Okazaki; see (col.4 lines 24-40, and col.12 lines 50-67).

15. Claim 9, contain the same limitation of claim 3, therefore it is rejected based on the same rational, supra.

16. As to claim 10, claim 1 includes all the limitations of claim 10; therefore claim 10 is rejected under the same rational, supra. The additional feature of claim 8, which is "pre-

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cambering distortion” is taught by Okazaki; see (col.4 lines 24-40, and col.12 lines 50-67, et seq.).

17. Claim 11, contain the same limitation of claim 3, therefore it is rejected based on the same rational, supra.

18. Claim 12, contain the same limitation of claim 4, therefore it is rejected based on the same rational, supra.

19. Claim 13, contain the same limitation of claim 4, therefore it is rejected based on the same rational, supra.

20. Claim 14, contain the same limitation of claims 6 and 8, therefore it is rejected based on the same rational, supra.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Shin et al. US Patent (6,560,498) Formation method and device for curved plates.
- Kasuya et al. US Patent No. (5,550,347) Method of reducing welding distortion in one side welding for joining plates.
- Ryudo et al. US Patent No. (5,852,273) resistance welding controller and method including thermal conduction simulation of weld nugget condition.
- Suresh et al. US Patent No. (6,311,135) Method and apparatus for determining preexisting stresses based on indentation or other mechanical probing of the material.

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- Mills US Patent No. (5,293,734) Bottom blade for grass cutting unit and method of producing.


Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mussa A Shaawat whose telephone number is (703) 605-1372. The examiner can normally be reached on Monday-Friday (8:30am to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jean R Homere can be reached on (703) 308-6647. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mussa Shaawat
Examiner
August 10, 2004


JEAN R HOMERE
PRIMARY EXAMINER